

## **ABSTRACT**

Communication between a controller and a set of automated vehicles in a manufacturing facility is improved by use of a closed-loop control system that operates on a real-time interrupt basis in which autonomous carriers report their location, sensed from reference markers along a track, the reference markers being referenced to an absolute grid in space, to a central controller or to one of a set of zone controllers that monitor the location of nearby vehicles that ordinarily use a token-passing system to avoid collisions, but which controllers can intervene to prevent one vehicle from blocking or interfering with another.